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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/684,331	10/10/2000	Katsumi Amano	Q61111	2185
7590 12/15/2005 SUGHRUE, MION, ZINN, MACPEAK & SEAS 2100 Pennsylvania Avenue, N.W. Washington, DC 20037-3202			EXAMINER ARMSTRONG, ANGELA A	
			ART UNIT 2654	PAPER NUMBER

DATE MAILED: 12/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/684,331

Applicant(s)

AMANO ET AL.

Examiner

Angela A. Armstrong

Art Unit

2654

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

1. Claims 1-4 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims recite limitations that manipulate an abstract idea or solve a purely mathematical problem without producing a useful, concrete or tangible result as the claims have no specific input or output.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

Art Unit: 2654

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kosaka (EP 0427485 A2).

3. Regarding claim 1, Kosaka teaches a speech synthesis apparatus and method. Kosaka provides for synthesizing speech with an apparatus comprising a sound source for generating a frequency signal, a vocal tract filter for filtering said frequency signal to generate a speech waveform signal, said filter having characteristics corresponding to a linear predictive coefficient calculated from respective phonemes in a phoneme series, at page 15, lines 15-38;

Kosaka does not teach dividing said phonemes into a plurality of N frames each having a predetermined time length. However, dividing speech segments into a plurality of frames for efficient processing of smaller segments was well known in the art of speech signal processing.

It would have been obvious to one of ordinary skill at the time of the invention to modify the system of Kosaka to implement dividing the phonemes into a plurality of frames, as was well known in the art, for the purpose of facilitating speech analysis and processing of smaller segments of data, thereby obtaining desired signal data.

Kosaka teaches obtaining an average power and a standard power, which reads on "summing squares of speech samples in one of said plurality of frames for each frame as a frame power value", at page 6, lines 11-22;

standardizing frame power values at head and tail frames in one phoneme to predetermined values, respectively, to obtain a frame power value of an n-th frame, at page 6, line 11 continuing to page 7, line 54; page 8, line 23 continuing to page 9, line 40;

Kosaka teaches a power normalizing function is added ("summing squares") or subtracted from the original data signal, which reads on "summing squares of signal levels of a frame in said frequency signal to obtain a frame power correction value", at page 6, lines 45-50;

providing a speech envelope signal by means of a function having variables of said standardized frame power values and said frame power correction value, and adjusting an amplitude level of said speech waveform signal as a function of the speech envelope signal, at page 6, line 11 continuing to page 7, line 54; page 8, line 23 continuing to page 9, line 40; page 15, line 39 continuing to page 16, line 32.

Regarding claim 2, additionally, Kosaka provides for providing power frequency characteristics based on said linear predictive coefficient corresponding to said n-th frame, calculating an average value of power values sampled from said power frequency characteristics at a predetermined frequency interval as a mean frame power value, calculating a speech waveform signal by means of a function having variables of said standardized frame power value, said frame power correction value and said mean frame power value, and adjusting an amplitude of said speech waveform signal as a function of said speech envelope signal, at page 6, line 11 continuing to page 7, line 54; page 8, line 23 continuing to page 9, line 40; page 15, line 39 continuing to page 16, line 32.

4. Regarding claim 3, Kosaka, at page 6, line 11 continuing to page 7, line 54; page 8, line 23 continuing to page 9, line 40; page 15, line 39 continuing to page 16, line 32, Kosaka teaches

Art Unit: 2654

determining a power normalization function and making adjustments to the parameters using information of the normalized power and average power. Kosaka discloses the claimed invention except for the particular function as expressed in claim 3.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide for a speech envelope as a function expressed as the square root of (standardized power/(power correction * mean frame power)), since the general conditions of the adjustments as a function of normalized power and average power are disclosed in the prior art, and discovering an optimum or workable function of effective variables involves only routine skill in the art.

5. Regarding claim 4, Kosaka also provides for the frequency signal includes an impulse signal carrying a voiced sound and a noise signal carrying an unvoiced sound, at page 9, lines 45-50.

Response to Arguments

6. Applicant's arguments filed September 19, 2005 have been fully considered but they are not persuasive.

Applicant argues the teachings of Kosaka of the adding of the normalization function is the actual correction process and not the obtaining of a frame correction value for the n-th frame. Applicant also argues that even if the normalization function can be considered a frame correction value, the correction value for any given frame is not based on "summing squares of signal levels of an n-th frame in said frequency signal." The Examiner disagrees and argues the power normalizing function provides support for the power correction value, since determining the power of a signal necessarily requires summing squares of the signal levels and processing

Art Unit: 2654

the average power for each of N frames is an obvious modification requiring only routine skill in the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela A. Armstrong whose telephone number is 571-272-7598. The examiner can normally be reached on Monday-Thursday 11:30-8:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on 571-272-7602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Angela A Armstrong
Primary Examiner
Art Unit 2654

AAA
December 12, 2005

